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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/827,742	04/06/2001	Wei Lu	28272.7	6703

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EXAMINER

MAURO JR, THOMAS J

ART UNIT	PAPER NUMBER
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2143

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/827,742

Applicant(s)

LU ET AL.

Examiner

Thomas J. Mauro Jr.

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11-17, 19-21, 23 and 24 is/are rejected.
- 7) ☒ Claim(s) 9, 10, 18 and 22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 20010904.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. Claims 1-24 are pending and are presented for examination. A formal action on the merits of claims 1-24 follows.

#### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show a clear depiction of the invention, specifically, a detailed flow chart depicting the various replacement of address information that occurs as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 3-4, 15 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant has not shown how the determination will be made that a port can be replaced by a gateway. It is unclear as to what the DPM driver/server uses to distinguish whether the port is replaceable or not. Proper correction is required.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2, 5-8, 12-14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatia (U.S. 6,563,824) in view of Gbadegesin (U.S. 6,754,709).

Regarding claim 1, Bhatia teaches a method for dynamically managing port and network addresses for a first network comprising:

obtaining a first port for an application session, the application session requiring communication with the second node **[Bhatia -- Col. 13 lines 12-59 (Table 1) – Initial packet is sent from client workstation to LAN modem containing a private source IP and private port, after the session has obtained it, for communicating with a second node];**

exchanging information for reserving a network address of the second type and, if the first port is replaceable, for dynamically assigning a second port **[Bhatia -- Col. 14 lines 4-59 – LAN modem uses the information contained in the outgoing packet to reserve and replace the source IP address and source port with a public source IP address and unique public port in order to allow communication outside the private network. The port is replaced to a unique port, thereby implying the port is replaceable; otherwise the port would not have been replaced];**

using the network address of the second type and the dynamically assigned second port for completing the communications of the application session **[Bhatia -- Col. 16 lines 31-41 – Using both the public IP address, i.e. address of the second type, and the publicly assigned port, communication with the remote server is begun ],**

wherein the information exchanged indicates a network address and port of the second node **[Bhatia -- Col. 13 lines 12-24 – Information exchanged with LAN modem device contains the IP address and port of the server, i.e. destination, node].**

Bhatia fails to explicitly teach a DPM driver exchanging information with a DPM server in order to communicate and provide intelligent NAT services.

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Gbadegesin, however, discloses a transparent proxy on the network gateway machine, i.e. DPM server, which can be initiated by the NAT API, i.e. DPM driver, on the client for exchanging information regarding the source and destination ports and addresses **[Gbadegesin -- Col. 8 lines 31-67 – Col. 9 lines 1-5]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the intelligent NAT services by providing a transparent proxy API library in communication with a NAT API, as taught by Gbadegesin into the invention of Bhatia, in order to provide intelligence and value added network services which does not lead to performance degradation **[Gbadegesin -- Col. 3 lines 30-34]**.

Regarding claim 2, Bhatia-Gbadegesin teach the invention substantially as claimed, as aforementioned in claim 1 above, including wherein the DPM driver, i.e. NAT API uses a first network address of the first type, and the DPM server, i.e. transparent proxy, uses a predetermined port and a second network address of the first type for information exchanged between the DPM driver and the DPM server **[Gbadegesin -- Col. 8 lines 43-57 – DPM driver, i.e. NAT API, sends the packet information using the initially established private source IP address, i.e. first network address of the first type, to the network gateway, i.e. running the transparent proxy, which is accessed using a local address, i.e. private IP address and port, for communication]**.

Regarding claim 5, Bhatia-Gbadegesin teach the invention substantially as claimed, as aforementioned by claim 1 above, including wherein the step further comprising changing, by

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the DPM driver, the network address of the second node and its port for the application session to the second network address of the first type and a predetermined port of the gateway for one or more packets of the application session [**Gbadegesin -- Col. 8 lines 43-67 – Col. 9 lines 1-5 and lines 26-44 – NAT API, i.e. DPM driver, initiates redirection such that the destination address of packets are changed from the destination address/port of the server to a local address of the transparent proxy and a port on the transparent proxy before allowing the application session to continue**].

Regarding claim 6, Bhatia-Gbadegesin teach the invention substantially as claimed, as aforementioned in claim 1 above further comprising:

including, by the DPM server, i.e. transparent proxy, the network address and port for the second node as a destination network address and destination port for one or more data packets of the application session initiated by the first node [**Gbadegesin -- Col. 8 lines 57-67 – Col. 9 lines 1-5 and lines 26-44 – Proxy forwards client request to original server by replacing the destination address with the original destination address/port of the server**]; and

assigning the network address of the second type and the first port or the second port if the first port is replaceable as a source network address and source port for the data packets of the application session initiated by the first node [**Gbadegesin -- Col. 8 lines 57-67 – Col. 9 lines 1-5 and lines 26-44 – Transparent proxy, similarly, replaces the source address/port for the packet to the original source address/port**].



Regarding claim 7, Bhatia-Gbadegesin teach the invention substantially as claimed, as aforementioned in claim 1 above including updating a look-up table indicating a one-to-one relationship between the reserved network address associated with either the first port or second, i.e. replaced, port and the first network address of the first type associated with the first port **[Bhatia -- Col. 13 lines 56-67 – Col. 14 lines 1-3 – NAT table contains a distinct pair association, i.e. one-to-one, mapping of the private source address/port and the public source address/port].**

Regarding claim 8, Bhatia-Gbadegesin teach the invention substantially as claimed, as aforementioned in claim 1 above, further comprising reconciling two separate application sessions requesting the use of the same reserved network address of the second type and the first port while at least the first port associated with one of the application sessions is not replaceable **[Bhatia -- Col. 14 lines 13-67 – Col. 15 lines 1-13 and Col. 16 lines 56-67 – Col. 17 lines 1-13 – Packets, upon returning, have the same destination IP address of the LAN modem and in order to find out which private client to route the packets to, the unique port number is used as a lookup to determine which source IP/port pair to route the particular packets to. Because one of the ports is replaceable, the two clients will have unique port numbers].**

Regarding claim 12, Bhatia teaches the invention substantially as claimed, a computer program **[Bhatia -- Col. 8 lines 64-67 – Col. 9 lines 1-7]** for dynamically managing port and network addresses, the computer program comprising:

instructions for obtaining a first port for an application session, the application session communicating with at least one computer outside of the first network **[Bhatia -- Col. 13 lines 12-59 (Table 1) – Initial packet is sent from client workstation to LAN modem containing a private source IP and private port, after the session have obtained it,];**

instructions for exchanging information for reserving a registered network address and, if the first port is replaceable, for dynamically assigning a second port **[Bhatia -- Col. 14 lines 4-59 – LAN modem uses the information contained in the outgoing packet to reserve and replace the source IP address and source port with a public, i.e. registered, source IP address and unique public, i.e. registered, port in order to allow communication outside the private network. The port is replaced to a unique port, thereby implying the port is replaceable; otherwise the port would not have been replaced];**

instructions for using the reserved registered network address and the dynamically assigned port for completing communications of the application session **[Bhatia -- Col. 16 lines 31-41 – Using both the public, i.e. registered, IP address, i.e. address of the second type, and the publicly assigned port, communication with the remote server is begun ],**

wherein the information exchanged indicates a network address and port for the computer outside of the first network communicating with the application session **[Bhatia -- Col. 13 lines 12-24 – Information exchanged with LAN modem device contains the IP address and port of the server, i.e. destination node or computer outside of the first network].**

Bhatia fails to explicitly teach a DPM driver exchanging information with a DPM server in order to communicate and provide intelligent NAT services.

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Gbadegesin, however, discloses a transparent proxy on the network gateway machine, i.e. DPM server, which can be initiated by the NAT API, i.e. DPM driver, on the client for exchanging information regarding the source and destination ports and addresses [**Gbadegesin -- Col. 8 lines 31-67 – Col. 9 lines 1-5**].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the intelligent NAT services by providing a transparent proxy API library in communication with a NAT API, as taught by Gbadegesin into the invention of Bhatia, in order to provide intelligence and value added network services which does not lead to performance degradation [**Gbadegesin -- Col. 3 lines 30-34**].

Regarding claims 13 and 16, 14 and 17, these are computer program claims corresponding to the method claimed in claims 2 and 6, 7 and 8. They have similar limitations; therefore, claims 13 and 16, 14 and 17 are rejected under the same rationale.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatia et al. (U.S. 6,563,824) and Gbadegesin (U.S. 6,754,709), as applied to claim 1 above, in view of Border et al. (U.S. 2002/0133596).

Regarding claim 3, Bhatia-Gbadegesin teach the invention substantially as claimed, as aforementioned in claim 1 above, but fails to explicitly teach detecting whether the first port for the application session is replaceable.

Border, however, discloses selective port replacement, i.e. spoofing, which examines any number of criteria from the TCP packet, i.e. specific application, source IP, source port, etc., to determine if replacement, i.e. spoofing, can occur **[Border -- Page 3 paragraph [0026] and paragraphs [0028-0029]]**. Although selective spoofer resides on the network gateway device and not on the client, Border teaches that the functionality can be on any existing network element, i.e. host **[Border-- Page 5 paragraph [0059]]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the detecting, i.e. determining, of whether port replacement, i.e. spoofing, can occur, as taught by Border into the invention of Bhatia-Gbadegesin, in order to achieve the benefit of a higher throughput to only the specific application sessions or users that need the benefit **[Border -- Page 2 paragraph [0015] and page 3 paragraph [0029]]**.

8. Claims 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatia et al. (U.S. 6,563,824) and Gbadegesin (U.S. 6,754,709), as applied to claims 1 and 12 above respectively, in view of Border et al. (US 2002/0133596) and Rao (U.S. 6,535,511).

Regarding claim 4, Bhatia-Gbadegesin-Border teach the invention substantially as claimed including checking whether the first port is replaceable by the DPM server **[Border --**

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**Page 3 paragraph [0026] and paragraphs [0028-0029] – Selective spoofer determines if the application is eligible for spoofing, i.e. port replacement, based upon various criteria in the TCP packet, i.e. specific application, source address or source port].**

Bhatia-Gbadegesin-Border fail to explicitly teach extracting the network address and port for the second, i.e. destination node, from the data segment of a packet.

Rao, however, discloses a method for embedding addressing information in a packet which extracts from the payload data section of a packet, i.e. data segment, addressing information to set up a communication session with another packet **[Rao -- Col. 3 lines 65-67 – Col. 4 lines 1-8 and Col. 5 lines 25-32 – Address information is extracted from payload data necessary to begin communication session. This information, therefore, would require the destination address information of the server, i.e. second, node and port information in order for communication to be established].**

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the extracting of address information from the payload data section of a packet, as taught by Rao into the invention of Bhatia-Gbadegesin-Border, in order to reduce the number of packets to initiate a session by embedding all the necessary information in the payload data.

Regarding claim 15, this is a computer program claim corresponding to the method claimed in claim 4. It has similar limitations; therefore, claim 15 is rejected under the same rationale.

9. Claims 11 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatia et al. (U.S. 6,563,824) and Gbadegesin (U.S. 6,754,709), as applied to claims 1 and 17 above respectively, in view of Molitor (U.S. 6,661,799).

Regarding claim 11, Bhatia-Gbadegesin teach the invention substantially as claimed, as aforementioned in claim 1 above, including the DPM driver, but fail to explicitly teach responding to a request from the application session inquiring the network address and port used by the session with the public network address of the second type and the assigned port. Molitor, however, discloses a system in which the remote application session makes an inquiry to an address manager to inquire the public address and port which the originating session will be using for communication [**Molitor -- Col. 10 lines 47-53**]. While this functionality is in the opposite direction, it would have been obvious to a person of ordinary skill in the art that the same functionality could be applied to the originating application session to inquire about the public address/port pair which it will use in the communication session. See *In re Gazda*, 219 F.2d 449, 104 USPQ 400 (CCPA 1955).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the inquiry requests by the application session for the public network address and port which will be used for communication, as taught by Molitor into the invention of Bhatia-Gbadegesin, in order to obtain necessary information about which addresses/ports that will be used which may be useful in implementing security features [**Molitor -- Col. 10 lines 50-51**].

Regarding claim 19, this is a computer program claim corresponding to the method claimed in claim 11 above. It has similar limitations; therefore, claim 19 is rejected under the same rationale.

10. Claims 20, 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatia et al. (U.S. 6,563,824) in view of Gbadegesin (U.S. 6,754,709) and further in view of Rao (U.S. 6,535,511) and Border et al. (US 2002/0133596).

Regarding claim 20, Bhatia teaches a method for dynamically managing port and network addresses for a first network, the method comprising:

obtaining a first port for an application session, the application session communicating with at least one computer outside of the network [**Bhatia -- Col. 13 lines 12-59 (Table 1) – Initial packet is sent from client workstation to LAN modem containing a private source IP and private port, after the session has obtained it, for communicating with a second node**];  
and

reserving a registered network address by exchanging information and dynamically assigning a second port to replace the first port for the application session if the first port is replaceable [**Bhatia -- Col. 14 lines 4-59 – LAN modem uses the information contained in the outgoing packet to reserve and replace the source IP address and source port with a public, i.e. registered, source IP address and unique public, i.e. registered, port in order to allow**

**communication outside the private network. The port is replaced to a unique port, thereby implying the port is replaceable; otherwise the port would not have been replaced];**

Bhatia fails to explicitly teach detecting whether a port is replaceable, extracting the network address and port for the computer outside of the first network from the data segment of a packet, including the network address and port for the computer outside of the first network as a destination network address and destination port for at least one data packet of the application session initiated by the computer of the first network, and assigning the reserved network address and either the first or second port as a source network address and source port for the packet.

Border, however, discloses selective port replacement, i.e. spoofing, which examines any number of criteria from the TCP packet, i.e. specific application, source IP, source port, etc., to determine if replacement, i.e. spoofing, can occur **[Border -- Page 3 paragraph [0026] and paragraphs [0028-0029]]**. Although selective spoofer resides on the network gateway device and not on the client, Border teaches that the functionality can be on any existing network element, i.e. host **[Border-- Page 5 paragraph [0059]]**.

In addition, Rao, however, discloses a method for embedding addressing information in a packet which extracts from the payload data section of a packet, i.e. data segment, addressing information to set up a communication session with another packet **[Rao -- Col. 3 lines 65-67 -- Col. 4 lines 1-8 and Col. 5 lines 25-32 -- Address information is extracted from payload data necessary to begin communication session. This information, therefore, would require the destination address information of the server, i.e. second, node and port information in order for communication to be established]**.



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Furthermore, Gbadegesin discloses a transparent proxy on the network gateway machine, i.e. DPM server, which can be initiated by the NAT API, i.e. DPM driver, on the client for exchanging information regarding the source and destination ports and addresses **[Gbadegesin -- Col. 8 lines 31-67 – Col. 9 lines 1-5]** along with including, by the DPM server, i.e. transparent proxy, the network address and port for the second node as a destination network address and destination port for one or more data packets of the application session initiated by the first node **[Gbadegesin -- Col. 8 lines 57-67 – Col. 9 lines 1-5 and lines 26-44 – Proxy forwards client request to original server by replacing the destination address with the original destination address/port of the server]**; and assigning the network address of the second type and the first port or the second port if the first port is replaceable as a source network address and source port for the data packets of the application session initiated by the first node **[Gbadegesin -- Col. 8 lines 57-67 – Col. 9 lines 1-5 and lines 26-44 – Transparent proxy, similarly, replaces the source address/port for the packet to the original source address/port]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the intelligent NAT services by providing a transparent proxy API library in communication with a NAT API along with including the network address and port of the destination computer as the destination address in the packet and the reserved network address and port as the source address and port of the packet, as taught by Gbadegesin, in addition to the detecting whether the first port is replaceable, as taught by Border, and furthermore extracting the network address and port from the data segment/payload portion of the packet, as taught by Rao into the invention of Bhatia, in order to provide intelligence and value added network services which does not lead to performance degradation **[Gbadegesin -- Col. 3 lines 30-34]**, to

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achieve the benefit of a higher throughput to only the specific application sessions or users that need the benefit **[Border -- Page 2 paragraph [0015] and page 3 paragraph [0029]]** and finally to reduce the number of packets to initiate a session by embedding all the necessary information in the payload data.

Regarding claims 21 and 23, these are method claims corresponding to the method claimed in claims 7 and 8 above respectively. They have similar limitations; therefore, claims 21 and 23 are rejected under the same rationale.

11. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatia et al. (U.S. 6,563,824), Gbadegesin (U.S. 6,754,709), Rao (U.S. 6,535,511) and Border et al. (US 2002/0133596), as applied to claim 20 above, in view of Molitor (U.S. 6,661,799).

Regarding claim 24, this is a method claim corresponding to the method claimed in claim 11 above. It has similar limitations; therefore, claim 24 is rejected under the same rationale.

***Allowable Subject Matter***

12. Claims 9-10, 18 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Borella et al. (U.S. 6,353,614) disclose a method and protocol for distributed network address translation.
- Tokuyo et al. (US 2001/0017862) discloses a system and method for rewriting information in a packet header by an intermediary router.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas J. Mauro Jr. whose telephone number is 703-605-1234. The examiner can normally be reached on M-F 8:00a.m. - 4:30p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on 703-308-5221. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

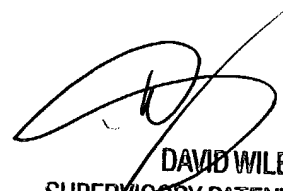
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TJM

August 20, 2004



DAVID WILEY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100